

Listing of Claims

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Original): An optical film comprising a transparent polymer film layer and a birefringent layer formed of a non-liquid crystalline polymer that are laminated together, wherein the birefringent layer satisfies a condition represented by the following formula (1), and the transparent polymer film layer has an in-plane retardation of not more than 50 nm:

$$n_x \geq n_y > n_z \quad (1)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer;

the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction.

2. (Original): The optical film according to claim 1, wherein a birefringence $\Delta n(a)$ of the birefringent layer and a birefringence $\Delta n(b)$ of the transparent polymer film layer satisfies a condition represented by the following formula (2):

$$\Delta n(a) > \Delta n(b) \times 10 \quad (2).$$

3. (Currently amended): The optical film according to claim 1 [[or 2]], wherein a birefringence (Δn) of the entire optical film is in a range of 0.0005 to 0.5.

4. (Currently amended): The optical film according to ~~any of claims 1 to 3~~ claim 1, wherein the non-liquid crystalline polymer for forming the birefringent layer is at least one kind

of polymer selected from the group consisting of polyamide, polyimide, polyester, polyetherketone, polyamideimide and polyesterimide.

5. (Currently amended): The optical film according to ~~any of claims 1 to 4~~ claim 1, wherein a resin for forming the transparent polymer film layer is at least one resin selected from the group consisting of acetate resin, polyester resin, polyethersulfone resin, polysulfone resin, polycarbonate resin, polyamide resin, polyimide resin, polyolefin resin, acrylic resin, polynorbornene resin, cellulose resin, polyarylate resin, polystyrene resin, polyvinyl alcohol resin, polyvinyl chloride resin, polyvinylidene chloride resin, polyacrylic resin, a mixed resin thereof; a liquid crystal polymer; and a mixture of a thermoplastic resin whose side chain has a substituted or unsubstituted imide group and a thermoplastic resin whose side chain has a substituted or unsubstituted phenyl group and a nitrile group.

6. (Currently amended): The optical film according to ~~any of claims 1 to 4~~ claim 1, wherein the resin for forming the transparent polymer film layer is at least one of triacetylacetate and a mixed resin of an alternating copolymer composed of isobutene and N-methylene maleimide and an acrylonitrile–styrene copolymer.

7. (Currently amended): The optical film according to ~~any of claims 1 to 6~~ claim 1, wherein the transparent polymer film layer is produced by shaping a material resin into a film and stretching.

8. (Currently amended): The optical film according to ~~any of claims 1 to 7~~ claim 1, wherein the transparent polymer film layer is used as a transparent protective film for a polarizing plate.

9. (Currently amended): A polarizing plate comprising an optical film and a polarizer, wherein the optical film is of ~~any of claims 1 to 8~~ claim 1.

10. (Original): The polarizing plate according to claim 9, wherein the transparent polymer film layer of the optical film functions also as a transparent protective film of the polarizing plate.

11. (Currently amended): The polarizing plate according to claim 9 [[or 10]], wherein the optical film functions as an optically-compensating layer.

12. (Currently amended): A liquid crystal panel comprising a liquid crystal cell and an optical member, wherein the optical member is disposed on at least one surface of the liquid crystal cell, and is ~~either the optical film according to any of claims 1 to 8~~ claim 1 ~~or the polarizing plate according to any of claims 9 to 11.~~

13. (Original): The liquid crystal panel according to claim 12, wherein the liquid crystal cell is at least one selected from the group consisting of an STN (Super Twisted Nematic) cell, a TN (Twisted Nematic) cell, an IPS (In-Plane Switching) cell, a VA (Vertical Aligned) cell, an OCB (Optically Compensated Birefringence) cell, a HAN (Hybrid Aligned Nematic) cell, and an ASAM (Axially Symmetric Aligned Microcell) cell.

14. (Currently amended): A liquid crystal display comprising a liquid crystal panel according to claim 12 [[or 13]].

15. (Currently amended): A self-light-emitting display comprising ~~at least one of the optical film according to any of claims 1 to 8~~ claim 1 ~~and the polarizing plate according to any of claims 9 to 11.~~

16. (Currently amended): An organic EL display comprising ~~at least one of the optical film according to any of claims 1 to 8~~ claim 1 ~~and the polarizing plate according to any of claims 9 to 11.~~

17. (Original): A method for producing an optical film comprising a transparent polymer film layer and a birefringent layer that are laminated together, the method comprising:

preparing or providing the transparent polymer film having an in-plane retardation of not more than 50 nm;

applying a non-liquid crystalline polymer solution on the transparent polymer film;

evaporating and removing a solvent in the solution so as to form the birefringent layer; and

adjusting the birefringent layer so as to satisfy a condition represented by the following formula (1):

$$n_x \geq n_y > n_z \quad (1)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer; the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction.

18. (Original): The method according to claim 17, wherein the birefringent layer and the transparent polymer film layer are formed such that a birefringence $\Delta n(a)$ of the birefringent layer and a birefringence $\Delta n(b)$ of the transparent polymer film layer satisfies a condition represented by the formula (2):

$$\Delta n(a) > \Delta n(b) \times 10 \quad (2).$$

19. (Currently amended): The method according to claim 17 [[or 18]], wherein a birefringence (Δn) of the entire optical film is in a range of 0.0005 to 0.5.

20. (Currently amended): The method according to ~~any of claims 17 to 19~~ claim 17, wherein the non-liquid crystalline polymer for forming the birefringent layer is at least one kind of polymer selected from the group consisting of polyamide, polyimide, polyester, polyetherketone, polyamideimide and polyesterimide.

21. (Currently amended): The method according to ~~any of claims 17 to 20~~ claim 17, wherein a resin for forming the transparent polymer film layer is at least one resin selected from the group consisting of acetate resin, polyester resin, polyethersulfone resin, polysulfone resin, polycarbonate resin, polyamide resin, polyimide resin, polyolefin resin, acrylic resin, polynorbornene resin, cellulose resin, polyarylate resin, polystyrene resin, polyvinyl alcohol resin, polyvinyl chloride resin, polyvinylidene chloride resin, polyacrylic resin, a mixed resin thereof; a liquid crystal polymer; and a mixture of a thermoplastic resin whose side chain has a substituted or unsubstituted imide group and a thermoplastic resin whose side chain has a substituted or unsubstituted phenyl group and a nitrile group.

22. (Currently amended): The method according to ~~any of claims 17 to 20~~ claim 17, wherein the resin for forming the transparent polymer film layer is at least one of triacetylacetate and a mixed resin of an alternating copolymer composed of isobutene and N-methylene maleimide and an acrylonitrile–styrene copolymer.

23. (Currently amended): The method according to ~~any of claims 17 to 22~~ claim 17, wherein the transparent polymer film layer is produced by shaping a material resin into a film and then stretching.

24. (Currently amended): The method according to ~~any of claims 17 to 23~~ claim 17, wherein the transparent polymer film layer and the birefringent layer are laminated, and then the laminate is stretched or shrunk.

25. (New): A liquid crystal panel comprising a liquid crystal cell and an optical member, wherein the optical member is disposed on at least one surface of the liquid crystal cell, and is the polarizing plate according to claim 9.

26. (New): The liquid crystal panel according to claim 25, wherein the liquid crystal cell is at least one selected from the group consisting of an STN (Super Twisted Nematic) cell, a TN (Twisted Nematic) cell, an IPS (In-Plane Switching) cell, a VA (Vertical Aligned) cell, an OCB (Optically Compensated Birefringence) cell, a HAN (Hybrid Aligned Nematic) cell, and an ASAM (Axially Symmetric Aligned Microcell) cell.

27. (New): A liquid crystal display comprising a liquid crystal panel according to claim 25.

28. (New): A self-light-emitting display comprising the polarizing plate according to claim 9.

29. (New): An organic EL display comprising the polarizing plate according to claim 9.